STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

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SECRETARY

MEMORANDUM TO: Project Engineers
Project Design Engineers

FROM: G. R. Perfetti, P. E.
State Bridge Design Engineer

DATE: February 12, 2004

SUBJECT: NEW JERSEY SHAPE BARRIER RAIL AND SLAB OVERHANG

To address various constructability concerns, the New Jersey shape barrier rail reinforcement will be shifted ¼" (6mm) for cast-in-place decks, and ½" (13mm) for cored slabs. The shift in reinforcement is from its currently detailed location, to give 2 ¾" (70mm) cover on the front and back of the barrier rail. In addition, to accommodate slip forming operations, the slab overhang behind the barrier rail will increase from ½" (13mm) to 1 ½" (38mm) for bridges with cast-in-place decks, and from flush to a 1" (25mm) overhang on cored slab bridges. Also, the top exterior edge of the slab shall now be formed with a ¾" (19 mm) chamfer.

Please note for current designs, this change will affect the gutter-to-gutter width for cored slab bridges, and the out-to-out width of bridges with New Jersey shape barrier rails. For all bridge types, the width of the approach slab should maintain the same out-to-out dimension as on the bridge.

Besides the above change to the deck width, it will no longer be the Unit's policy to slope the bottom of the slab overhang away from the edge of the exterior beam flange on the high side of super elevation. Therefore, detail the bottom of slab overhang to be approximately parallel to the deck slope. Show the depth of overhang at the outside edge of the slab to the nearest ¼" (6mm).

Current designs do not necessarily need to be rerun for the exterior girders due to these changes. With each slab overhang's additional 1" (25mm) of width and the decrease of concrete in the overhang bottom slope, the net change in slab weight for exterior girders on the high side of super will be small. Since this girder typically controls the design for both exterior girders, redesign will not be necessary in most cases.

This policy is effective with the June 2004 letting. The attached standard drawings are available on both the S: Drive and the Structure Design Homepage. The Design Manual Figures on the

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Structure Design Homepage have been updated, but the Design Manual and NCBDS will be revised at a later date.

GRP/DAS

Attachments

- Fig. 6-20 (English)
- Fig. 6-20 (Metric)
- Fig. 6-21 (English)
- Fig. 6-21 (Metric)
- Std. No. CBR1, CBR1SM
- Std. No. PCS1, PCS1SM
- Std. No. PCS2, PCS2SM
- Std. No. PCS3, PCS3SM

Cc: E. Villalba, FHWA, with attachments
R. V. Keith, P. E., with attachments
R. A. Raynor, P. E., with attachments
J. Emerson, P. E., with attachments
R. Hancock, P. E., with attachments